WE CLAIM:

1. A system for operating robots in a robot competition, said system comprising:

a plurality of operator interfaces, each operator interface being operable to control movement of a respective robot;

a first plurality of radios, each radio being in communication with a respective operator interface, and having a low power RF output signal;

a plurality of robots;

a plurality of robot controllers, each robot controller coupled to a respective robot; and

a second plurality of radios, each second radio coupled to a respective robot and in communication with a respective robot controller and first radio, and having a low power RF output signal while communicating with the respective first radios.

2. The system according to claim 1, wherein the low power RF output signal is a maximum of approximately 0.25 watts.

3. The system according to claim 1, wherein said first plurality of radios have a maximum communication range of approximately 500 feet.

4. The system according to claim 1, wherein said first plurality of radios are substantially the same.

5. The system according to claim 1, wherein said first and second radios operate in full duplex.

6. The system according to claim 1, wherein said first and second radios communicate on an RS-422 communication standard.

7. A system for operating robots in a robot competition, said system comprising:

a plurality of operator interfaces, each operator interface being operable to control movement of a respective robot;

a first plurality of radios, each radio being in communication with a respective operator interface, and having a short communication range;

a plurality of robots;

a plurality of robot controllers, each robot controller coupled to a respective robot; and

a second plurality of radios, each second radio coupled to a respective robot and in communication with a respective robot controller and first radio, and having a short communication range.

8. The system according to claim 7, wherein said first radios have low power RF output signal of a maximum of approximately 0.25 watts.

9. The system according to claim 7, wherein the short communication range is a maximum of approximately 500 feet.

10. The system according to claim 7, wherein said first plurality of radios are substantially the same.

11. The system according to claim 7, wherein said first and second radios operate in full duplex.

12. The system according to claim 7, wherein said first and second radios communicate on an RS-422 communication standard.

13. A system for controlling a robot competition having a plurality of robots engaged therein, said system comprising:

at least one arena controller operable to provide control of the robots;

a plurality of operator interfaces coupled to said at least one arena controller; and

a plurality of operator radios being in one-to-one correspondence with said plurality of operator interfaces and coupled thereto.

14. The system according to claim 13, wherein each of said plurality of operator radios operate on a separate channel as commanded by a corresponding arena controller.

15. The system according to claim 14, wherein said at least one arena controller further provides control of said operator interfaces.

16. The system according to claim 13, wherein said operator radios are capable of communicating on channels restricted for tournament use.

17. The system according to claim 13, wherein the control includes at least one of the following:

enabling and disabling of the robots, and

allocating of a channel.

18. The system according to claim 13, further comprising a plurality of robot controllers operable to control a corresponding robot, each robot controller coupled to a robot radio to communicate with a corresponding operator radio.

19. The system according to claim 18, wherein the robot controllers include a sweep means for sweeping the operator frequencies of the robot radios.

20. The system according to claim 13, further comprising a field controller coupled to said at least one arena controller.

21. The system according to claim 20, wherein said field controller is integrated with an arena controller.

22. The system according to claim 20, wherein said field controller allocates channels on which said operator radios communicate.

23. The system according to claim 20, wherein said field controller enables and disables said at least one arena controller.

24. A method for controlling a robot competition within an arena having a plurality of robots engaged in competition therein, said method comprising:

installing at least one device for engagement by contestants of the robot competition;

allocating, by the at least one device, a plurality of channels for communication of signals to the robots during the robot competition;

assigning a unique channel to each contestant engaging the at least one device; and

conducting the robot competition with the engaged contestants.

25. The method according to claim 24, wherein the at least one device is an arena controller.

26. The method according to claim 24, wherein control of the robot is selectively enabled and disabled via the at least one device.

27. The method according to claim 24, wherein said assigning includes:

sweeping the plurality of channels by a robot;

identifying the control signal; and

locking to the unique channel.

28. The method according to claim 24, wherein the plurality of channels are restricted for tournament use.

29. The method according to claim 28, wherein a password is utilized to provide access to the restricted channels.

30. A system for providing dual-mode communication between an operator and a robot, said system comprising:

at least one operator interface having at least two communication ports, a first operator interface operable by the operator for controlling movement of the robot;

a first radio, coupled to a first communication port of an operator interface, to communicate data on a channel;

a second radio, mechanically coupled to the robot, for communicating with said first radio;

a robot controller mechanically coupled to the robot, said robot controller having at least two communication ports for receiving the data to control the robot, said second radio being coupled to a first communication port of said robot controller, a second communication port of said robot controller being operable to receive the data from said operator interface via a tether connection.

31. The system according to claim 30, wherein transmit power of at least one of said first and second radios is disabled during the tether connection.

32. The system according to claim 30, wherein the cable is conductive or optical.

33. The system according to claim 30, wherein the tether connection includes coupling a tether cable between a second communication port of the operator interface and the second communication port of said robot controller.

34. A method for determining a channel of communication between an operator interface and a remote control device, the operator interface and remote control device having associated device numbers, said method comprising:

assigning the channel to the operator interface;

transmitting a signal on a first channel, the signal including a device number, channel number, and checksum;

selecting, by the remote control device, a second channel to receive the signal;

receiving the signal including the device number, channel number, and checksum;

verifying the checksum to confirm integrity of the signal;

determining if the second channel and the channel number match; and

determining if the transmitted device number corresponds to the device number of the remote control device.

35. The method according to claim 34, further comprising locking the channel of the remote control device.

36. The method according to claim 34, wherein the remote control device is a robot.

37. The method according to claim 34, wherein the determining of the channel occurs during a robot competition.

38. The method according to claim 34, wherein each of the device number, channel number, and checksum are transmitted in a single data packet.

39. The method according to claim 34, further comprising selecting a different channel if the second channel and channel number do not match.

40. A method for verifying data integrity communicated between an operator interface and a remote control device, the operator interface and remote control device having associated device numbers, said method comprising:

communicating a signal on a channel between the operator interface and the remote control device, the signal including a device number, channel number, and checksum;

receiving the signal including the device number, channel number, and checksum;

verifying the checksum to confirm integrity of the signal;

determining if the channel and the channel number match; and

determining if the transmitted device number corresponds to the device number of the remote control device.

41. The method according to claim 40, further comprising:

determining that data integrity is invalid; and

utilizing, by the remote control device, a last set of valid data.

42. The method according to claim 40, further comprising:

determining that data integrity is invalid; and

disabling the remote control device.

43. The method according to claim 40, wherein the remote control device is a robot.

44. The method according to claim 40, wherein the determining of the channel occurs during a robot competition.

45. The method according to claim 40, wherein each of the device number, channel number, and checksum are transmitted in a single data packet.

46. A system for determining a channel of communication between an operator interface and a remote control device, the operator interface and remote control device having associated device numbers, said method comprising:

means for assigning the channel to the operator interface;

means for transmitting a signal on a first channel, the signal including a device number, channel number, and checksum;

means for selecting, by the remote control device, a second channel to receive the signal;

means for receiving the signal including the device number, channel number, and checksum;

means for verifying the checksum to confirm integrity of the signal;

means for determining if the second channel and the channel number match; and

means for determining if the transmitted device number corresponds to the device number of the remote control device.

47. The system according to claim 46, further comprising locking the channel of the remote control device.

48. The system according to claim 46, wherein the remote control device is a robot.

49. The system according to claim 46, wherein the determining of the channel occurs during a robot competition.

50. The system according to claim 46, wherein each of the device number, channel number, and checksum are transmitted in a single data packet.

51. The system according to claim 46, further comprising selecting a different channel if the second channel and channel number do not match.

52. A system for verifying data integrity communicated between an operator interface and a remote control device, the operator interface and remote control device having associated device numbers, said method comprising:

means for communicating a signal on a channel between the operator interface and the remote control device, the signal including a device number, channel number, and checksum;

means for receiving the signal including the device number, channel number, and checksum;

means for verifying the checksum to confirm integrity of the signal;

means for determining if the channel and the channel number match; and

means for determining if the transmitted device number corresponds to the device number of the remote control device.

53. The system according to claim 52, further comprising:

means for determining that data integrity is invalid; and

means for utilizing, by the remote control device, a last set of valid data.

54. The method according to claim 52, further comprising:

determining that data integrity is invalid; and

disabling the remote control device.

55. The system according to claim 52, wherein the remote control device is a robot.

56. The system according to claim 52, wherein the determining of the channel occurs during a robot competition.

57. The system according to claim 52, wherein each of the device number, channel number, and checksum are transmitted in a single data packet.

58. A method for conducting a robot competition, said method comprising:

issuing to contestants of the robot competition a plurality of radios being low range, commercially available, and substantially the same, the radios being operable receive data to control movement of respective robots;

entering the contestants to participate in the robot competition; and

coordinating individual matches during the robot competition.

59. The method according to claim 58, further issuing operator interfaces.

60. The method according to claim 58, further issuing robot controllers.

61. The method according to claim 58, wherein each of the radios has a maximum radio frequency power of 0.25 watts.

62. The method according to claim 58, wherein each of the radios has a maximum communication of approximately 500 feet.

63. The method according to claim 58, wherein said issuing includes selling the radios to contestants of the robot competition.

64. The method according to claim 58, wherein said entering includes registering contestants prior to participating in the robot competition.

65. The method according to claim 58, wherein said coordinating includes regulating operation of the sets of operator interfaces and radios.

66. The method according to claim 65, wherein the regulating includes assigning a unique operating channel to each radio.

67. The method according to claim 65, wherein the regulating includes starting and stopping the individual matches substantially simultaneously.

68. A method for conducting a robot competition, said method comprising:

issuing to contestants of the robot competition a plurality of radios and operator interfaces, the radios being commercially available, and substantially the same, the radios being operable to receive data to control movement of respective robots;

entering the contestants to participate in the robot competition; and

coordinating individual matches during the robot competition.

69. The method according to claim 68, further issuing robot controllers.

70. The method according to claim 68, wherein each of the radios has a maximum radio frequency power of 0.25 watts.

71. The method according to claim 68, wherein each of the radios has a maximum communication of approximately 500 feet.

72. The method according to claim 68, wherein said issuing includes selling the radios to contestants of the robot competition.

73. The method according to claim 68, wherein said entering includes registering contestants prior to participating in the robot competition.

74. The method according to claim 68, wherein said coordinating includes regulating operation of the sets of operator interfaces and radios.

75. The method according to claim 74, wherein the regulating includes assigning a unique operating channel to each radio.

76. The method according to claim 74, wherein the regulating includes starting and stopping the individual matches substantially simultaneously.

77. A method for providing safety at a robot competition, said method comprising:

commencing the robot competition; and

providing a remote disabling mechanism operable to selectively disable at least one robot independent of a person operating the at least one robot.

78. The method according to claim 77, wherein the selective disable includes disengaging power to the at least one robot.

79. The method according to claim 77, wherein the selective disable includes disabling control signals on the at least one robot.

80. The method according to claim 77, wherein the remote disabling mechanism is an emergency stop button being readily accessible and operable to disable all robots in a local vicinity of the emergency stop button.

81. The method according to claim 80, wherein the local vicinity is within approximately 500 feet of the emergency stop button.

82. A system for providing safety at a robot competition, said system comprising:

means for selectively disabling at least one robot independent of a person operating the at least one robot; and

means for disabling the at least one robot.

83. The system according to claim 82, wherein the selective disable includes disengaging power to the at least one robot.

84. The system according to claim 82, wherein the selective disable includes disabling control signals on the at least one robot.

85. The system according to claim 82, wherein the disabling occurs for all robots in a local vicinity of the emergency stop button.

86. The system according to claim 85, wherein the local vicinity is within approximately 500 feet of the emergency stop button.

87. A system for providing safety at a robot competition, said system comprising:

a device operable to selectively disable at least one robot independent of a person operating the at least one robot;

at least one first radio in communication with said device;

a second radio, coupled to a robot and in communication with the at least one first radio, the second radio operable to receive a signal for disabling the robot; and

a device operable to disable the robot.

88. The system according to claim 87, wherein the selective disable includes disengaging power to the at least one robot.

89. The system according to claim 87, wherein the selective disable includes disabling control signals on the at least one robot.

90. The system according to claim 87, wherein the remote disabling mechanism is an emergency stop button being readily accessible and operable to disable all robots in a local vicinity of the emergency stop button.

91. The system according to claim 90, wherein the local vicinity is within approximately 500 feet.